Blue Ribbon Panel to Review the Use of Oxygenates in Gasoline
Tuesday, March 2, 1999

NEW JERSEY STUDIES

Environmental & Occupational Health Sciences Institute (EOHSI) Studies:

1. "Health Effects of MTBE Among New Jersey Garage Workers":

The study was conducted to "...contrast symptom reporting among two groups of garage workers: one group actively exposed to MTBE, and another group several weeks after MTBE was scheduled to be phased out of the wintertime oxyfuel program.:

The study concluded that, "No increased rates of symptom reporting were found among northern garage workers who worked in the area that was still required to participate in the oxyfuel program."

2. "Response of Sensitive Groups to MTBE":

The purpose of the study was to "...assess the symptomatic responses of individuals known to report sensitivities to very low-level chemical exposures (multiple chemical sensitivities, MCS) and chronically ill individuals who do not attribute their illness to chemicals (chronic fatigue syndrome, CFS)."

The study concluded that, "...while the current sample was limited, MTBE symptoms were not uniquely associated with chemical sensitivity or with situations where MTBE was more prevalent."

3. "Microenvironmental and Personal Measurements of MTBE Associated with Automobile Use Activities":

"Two locations where human contact with gasoline and its constituents can lead to a wide range of concentrations and exposure patterns are: the interior of an automobile during stop/go commutes, and the activities surrounding current gasoline refueling practices. This study was conducted to characterize the exposure to MTBE from oxygenated fuels during these activities."

Some of the study conclusions: "Self-service exposures at Non-Stage II gasoline stations were higher than exposures at a station with Stage II pumps."
"The vehicle gas refueling studies found that the highest levels of MTBE were associated with personal refueling of vehicles at both the Stage II and Non-Stage II gasoline stations..." "...the type of vehicle operated by an individual and the activities

surrounding the refueling of a vehicle have a major influence on MTBE exposure."

4. "A Controlled Short-Term Exposure Study to Investigate the Health Effects of MTBE in Gasoline":

The purpose of the study is to investigate whether there is a correlation between the adverse health symptoms reported by self-declared MTBE sensitive individuals and the use of oxygenates (particularly MTBE) in gasoline.

The study conclusions are not evident as the data is still being quality assured and analyzed.

US Geological Survey (USGS) Studies:

1. "MTBE and Other Volatile Organic Compounds in Lakes in Byram Township, Sussex County, New Jersey, Summer 1998"

The study evaluated water samples from 4 lakes: two of the lakes permitted gasoline-powered watercraft for recreational activities and two of the lakes prohibited such activities. The two lakes (Cranberry Lake, Lake Lakawanna) that permitted gasoline-powered watercraft for recreational purposes were found to have VOCs (including MTBE and some BTEX). Conversely, the two lakes that prohibited such activities (Stag Pond, Forrest Lake) were not found to have VOCs (i.e., MTBE or BTEX) present.

2. "Spatial Variability of Volatile Organic Compounds in Streams on Long Island, New York, and in New Jersey", 1997

The study was conducted as part of the National Water Quality Assessment (NAWQA) program. Since the Long Island-New Jersey area is "one of the most densely populated and developed areas of the country, VOCs and other toxic chemicals are expected to be present in surface and ground waters."

The study found that, "The six most frequently detected VOCs were MTBE, acetone, naphthalene, tetrachloroethene (PCE), chloroform, and trichloroethene (TCE)..." "None of the concentrations measured exceeded the USEPA drinking-water maximum contaminant level (MCL) or lifetime health-advisory (HAL)..."

3. "Occurrence of Nitrate, Pesticides, and Volatile Organic Compounds in the Kirkwood-Cohansey Aquifer System, Southern New Jersey"

The study evaluated water samples "collected from a network of 72 shallow

monitoring wells to assess the chemical quality of recently recharged ground water in...southern New Jersey."

The study found that, "The most frequently detected VOC's were chloroform, MTBE, carbon disulfide, 1,1,1,-trichloroethane, and tetrachloroethene..." "None of the samples contained VOC concentrations greater than an established drinking-water regulation; USEPA or NJDEP drinking-water regulations are at least 5 times the maximum concentration reported for these VOC's."

4. "Evaluation of Atmosphere as a Source of Volatile Organic Compounds in Shallow Groundwater"

Study purpose: "The atmosphere as a source of volatile organic compounds (VOCs) in shallow groundwater was evaluated over an area in southern New Jersey."

The study reported that, "The atmosphere was sampled for these compounds and only MTBE concentrations were high enough to potentially explain frequent detection in shallow groundwater."

The study further reported that, "Migration in groundwater from a point source(s) to the observation wells with detections, however, cannot be ruled out for MTBE."

<u>NJDEP Studies/Task Force</u>:

1. The NJDEP established an in-house MTBE Task Force where staff from various divisions (air, water, underground storage tanks, site remediation (clean-up), science & research, etc.) meet at least quarterly to discuss MTBE-related issues, particularly, New Jersey-specific information. The group has met on two occasions and has been gathering a repository of New Jersey-specific MTBE studies and information.

The Task Force will keep management apprised of MTBE-related issues.

2. 1994: New Jersey established and proposed a drinking water MCL (maximum contaminant level) for MTBE. The MCL was established at 70 ug/L based upon studies which were available at that time, including non-carcinogenic effects of oral studies in rats. The MCL was based upon a rating of "possible carcinogen" which is analogous to EPA's Group Level C.

3. 1985-1986: As part of the A-280 program, the NJDEP Bureau of Safe Drinking Water (BSDW) and Division of Science & Research (DSR) conducted a statewide sampling survey where they detected levels of MTBE ranging from 1-81 ug/L in <u>raw</u> *(unfinished)* public water supplies.

After treatment, water supplies were well below the New Jersey drinking water MCL and the USEPA health advisory.